

# Direct Satellite Reception

## In the PACIFIC ISLANDS

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**SPREP**

South Pacific Regional Environment Programme

**PROE**

Programme régional océanien de l'environnement

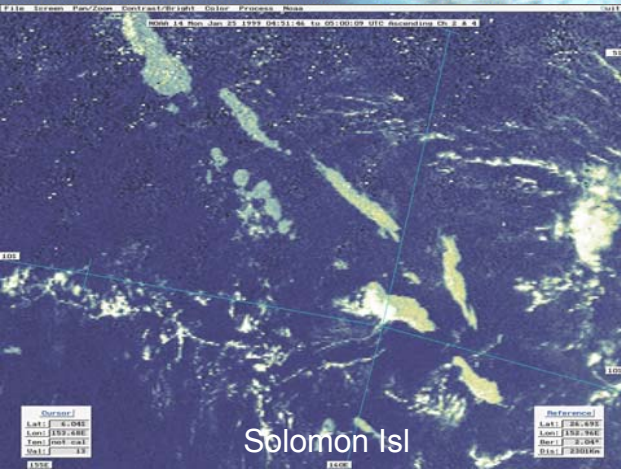


# Pacific Islands



Wide variety of terrain

- Atolls
- High Mountains
- Tropical Jungles
- Urban Centers
- Large Ocean Areas





# Pacific Islands



Funafuti Atoll

- Many small and remote Islands
- Difficult access
- Telecoms expensive
- Very limited resources and finances.



# The Pacific Islands





# Why do We need Direct Reception ?

- Alternate sources are unreliable and expensive ( e.g. INTERNET and Leased Lines)
- During Severe Storms commercial services are cut because of safety considerations for Telco satellite antennas.
- Internal wire services are often unreliable.
- Need for Disaster and Meteorological Services to have direct control of downlinks.



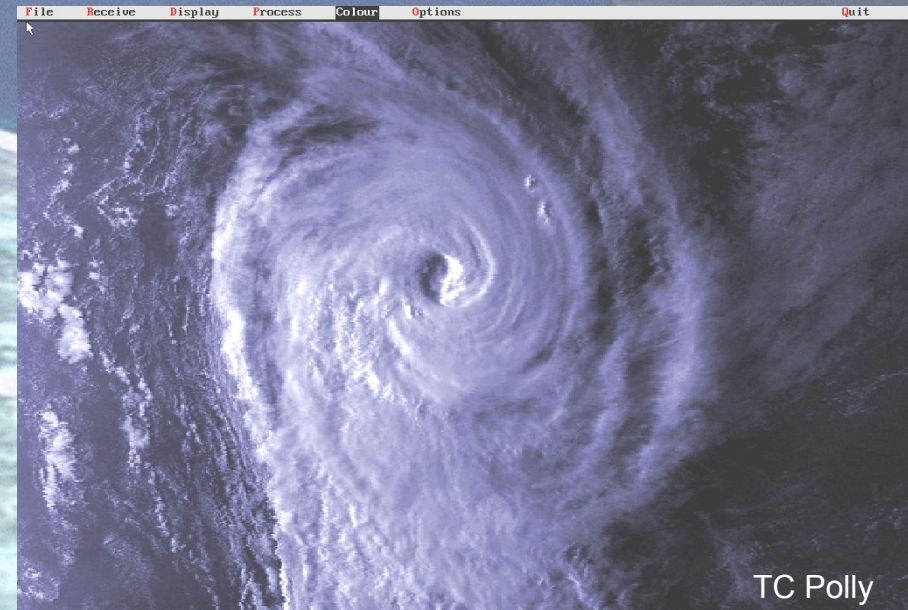


# Disaster Managers need Reliable Warnings and Data

- Hurricanes
- Tsunamis
- Volcanic Ash



Many other  
Severe Weather  
Events





# Meteorologists need Accurate, Up to Date Information

- To prepare accurate forecasts accurate data is needed.
- To provide advance storm warnings regular images and data is required.
- Ideally higher resolution images than now available on WEFAX are required hourly.



# Current Equipment

## WEFAX and EMWIN ANTENNAS

- Most WEFAX and EMWIN Sites use 6 ft Antennas
- Receivers are Quorum Wefax Pro, Tigertronics and Zephyrus.
- Downconverters are Quorum or Wilmanco





# Difficult Site

- 1/2 Degree elevation but EMWIN and WEFAX still works from GOES W
- Port Moresby  
PNG NWS  
Headquarters





# DATA and IMAGE SOURCES

- GOES WEST WEFAX and GVAR
- GOES WEST EMWIN.
- GOES 9 Imaging ( GMS stand in)
- GOES 7 EMWIN
- GMS VISSR (now inoperative)
- GMS WEFAX (usually via GOES W Relay)
- NOAA APT and HRPT
- INTERNET



# Products regularly used.

- WEFAX VIS, IR and WV Images.
- Surface and Upper Air Charts
- SIGWX Charts
- NOAA APT Images
- NOAA HRPT Images ( Larger Stations only)
- Hi Res Images ( Larger Stations only)



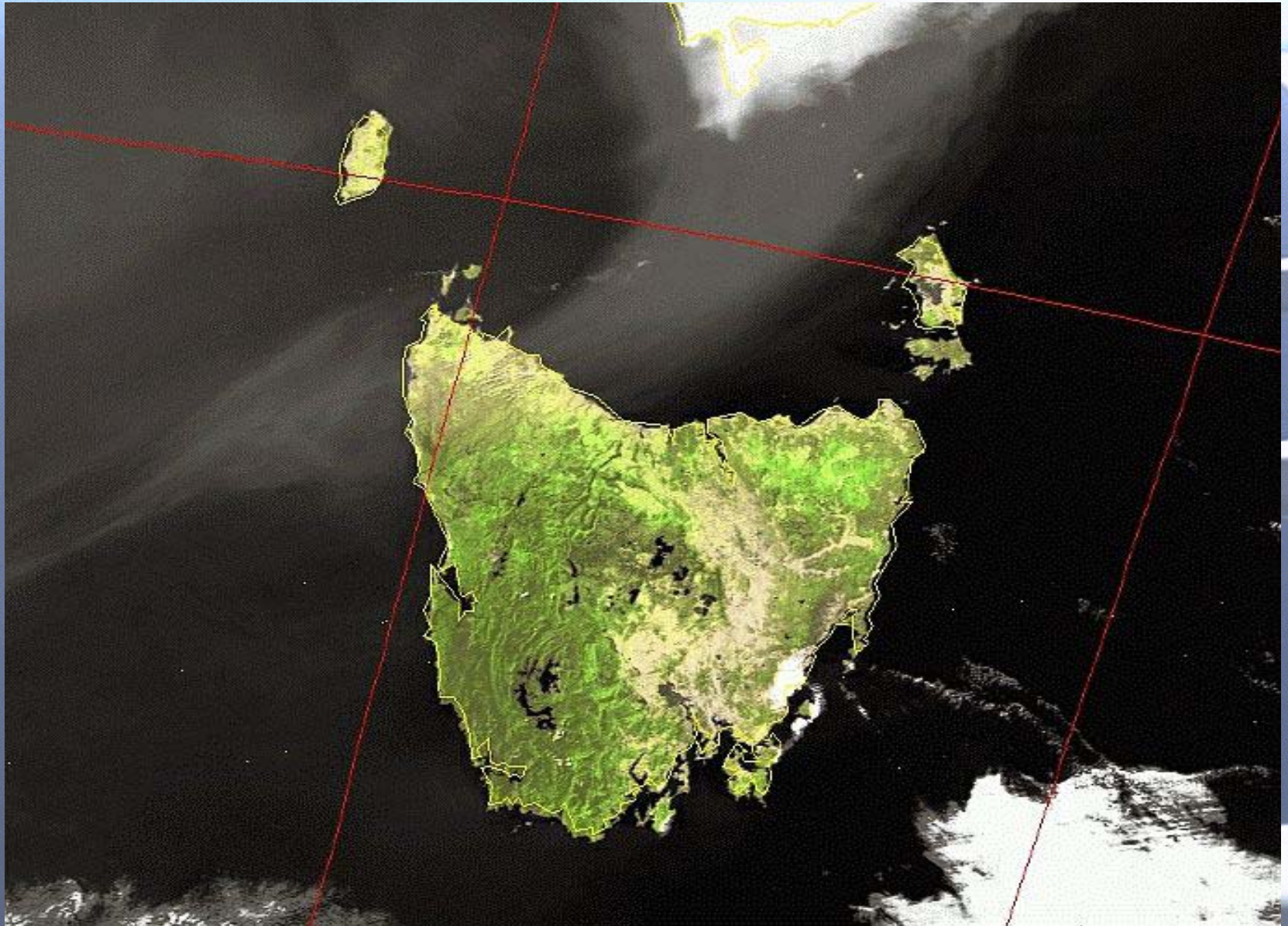
# DCP - DCS

- Many Data Collection Platforms used throughout the region accessing GMS and GOES W.
- Mostly Automatic Weather Stations in remote locations.



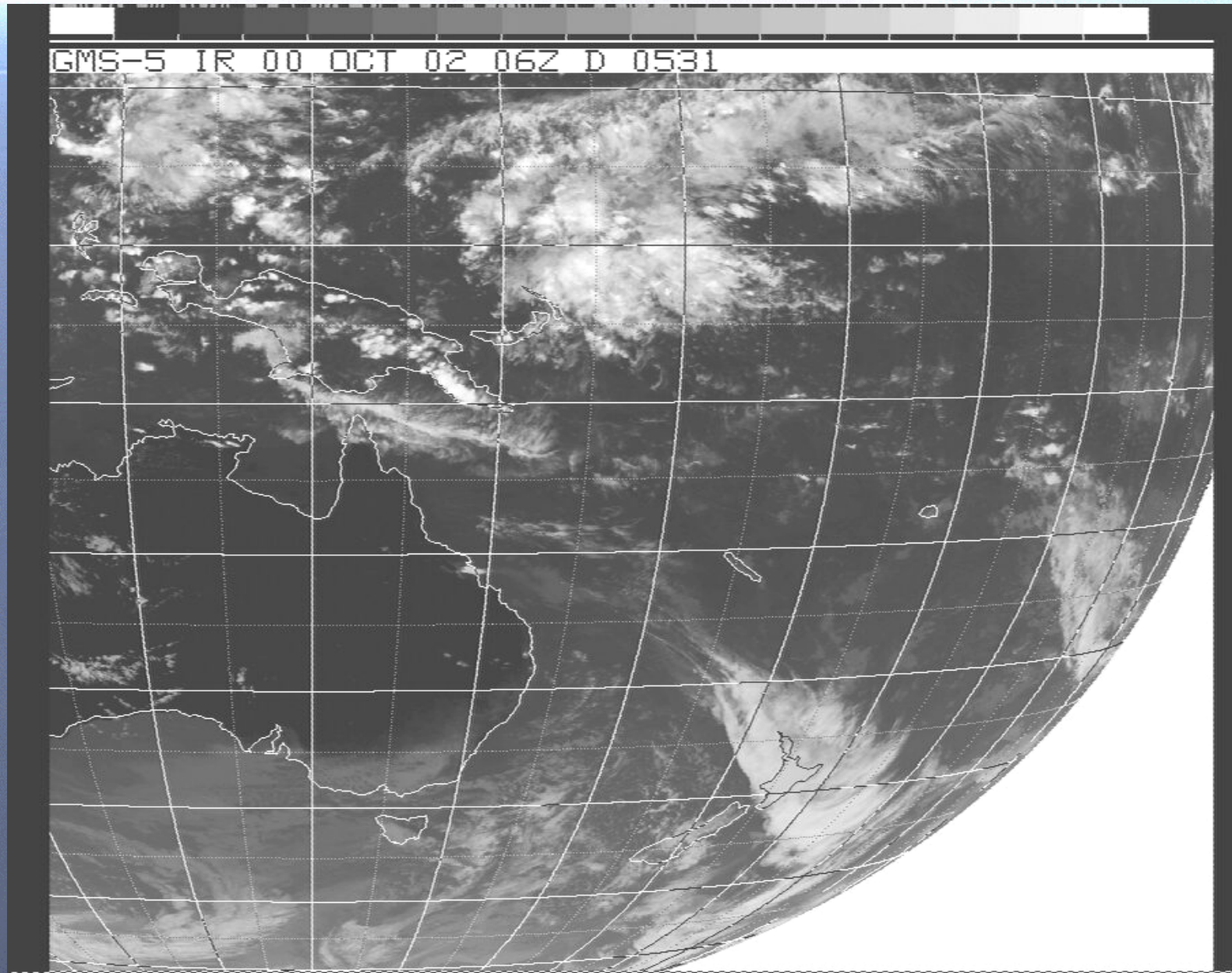


# HRPT



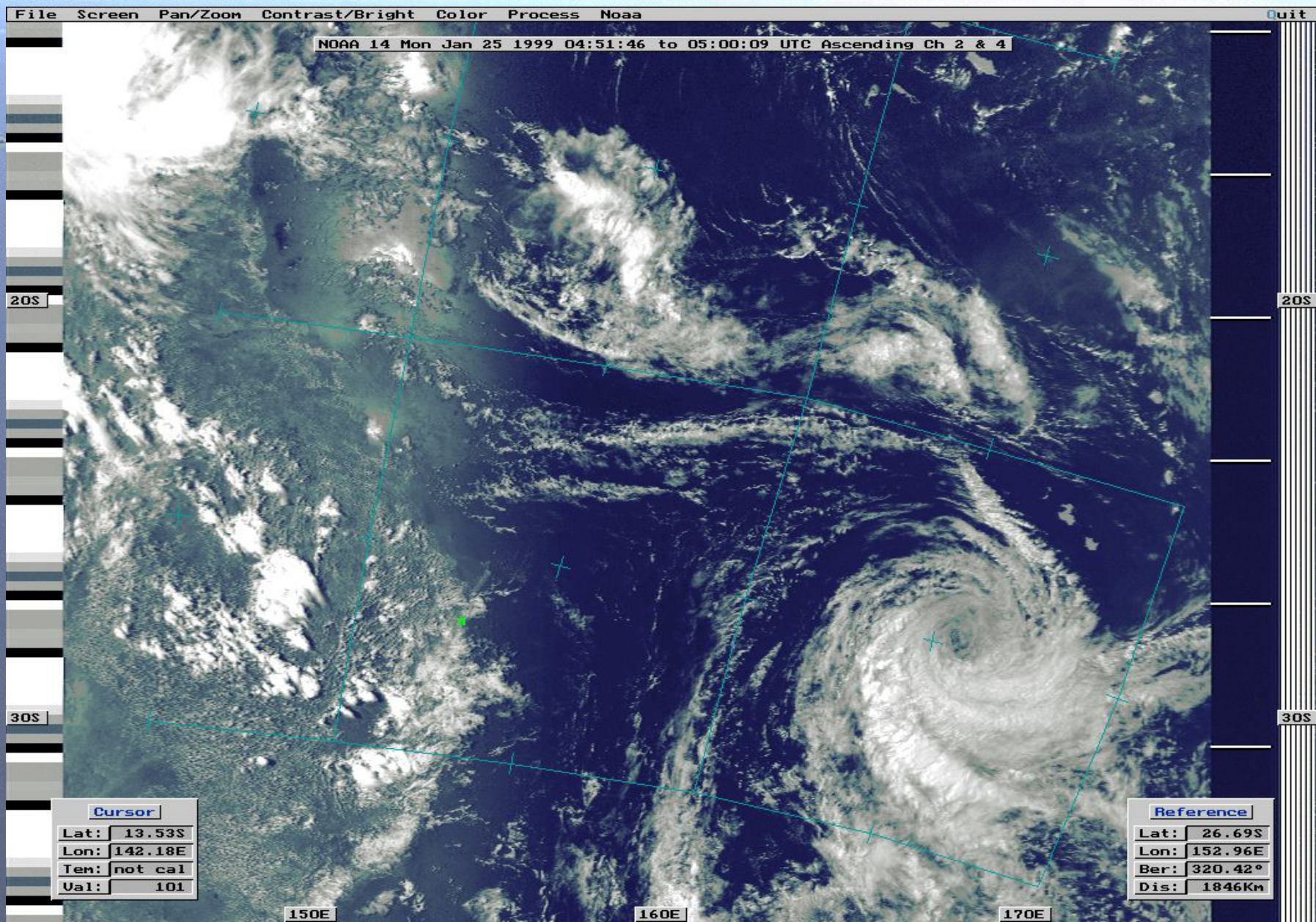


# WEFAX





# APT





# EMWIN

EMWIN LOCAL DISPLAY

FILE SETUP HELP

Active Country

11/16/04

EMWIN LOCAL DISPLAY

2:03:15 PM

V2.00 N,  
11/2002

American Samoa

pcfsapws.txt

PCFFNFJ.TXT  
PCFFFNKI.TXT  
PCFFFNNU.TXT  
PCFFFNTG.TXT  
PCFFFNTK.TXT  
PCFFFNTU.TXT  
PCFFFNUE.TXT  
PCFFFNWF.TXT  
PCFSAPWS.TXT

Update  
ON

ALARM  
ON

FPZM60 NSAP 160337

SAMOA

EVENING FORECAST FOR SAMOA  
ISSUED BY SAMOA METEOROLOGICAL DIVISION AT 160300Z  
MONDAY 15TH, NOVEMBER 2004.

SITUATION: A RIDGE OF HIGH PRESSURE EXTENDING FROM THE SOUTHWEST MAINTAINS FINE WEATHER OVER SAMOA. MEANWHILE, A MOIST EASTERLY WINDFLOW COVERS THE GROUP. ASSOCIATED SHOWERS AND THUNDERSTORMS WILL AFFECT THE AREA FROM TIME TO TIME.

FOR TONIGHT: CLOUDY WITH ISOLATED SHOWERS AND ISOLATED THUNDERSTORMS, BECOMING FINE LATE TONIGHT.

TOMORROW & WEDNESDAY: CLOUDY PERIODS WITH ISOLATED SHOWERS AND A FEW THUNDERSTORMS POSSIBLE ON HIGHLANDS DURING AFTERNOON.

TONIGHT FORECAST MINIMUM  
APIA 25° C  
FALEOLO 24° C

RECORDED MAXIMUM TEMPERATURE  
APIA 30.4 DEG C AT 2200Z  
FALEOLO 30.0 DEG C AT 0300Z

SUNRISE AT 6:49 A.M. (LOCAL TIME)  
(NEXT WEATHER BULLETIN WILL BE ISSUED AT 161700Z)

GMS

GOES  
W

A Sam  
Fcast

Area  
Fcast

Marine  
Fcast

Trop Wx  
Outlook

Cyclones  
SWP

Aviation  
Data

Pago Obs

Hurricane  
Files

Int'natnl  
Wx

Equake  
Summary

Tsunami  
Data

SW Pac  
Image

Samoa  
Fcast

Samoa  
Marine

Pago  
Metar

Cyclone  
Tracks

Emwin  
Sys Msg

Ash  
Warnings

Space  
weather



# The Future

- WEFAX being discontinued
- LRIT taking it's place
- EMWIN being modified
- We need to be ready





# LRIT

- Need to re-equip all stations with LRIT receivers and new PCs
- Need new acquisition and display software
- Need to Retrain staff
- High cost of refitting all stations.  
(US\$250K+)
- Expected outcome ... more and better data.



# LRIT restraints.

- Present Estimates around \$US 20K per site. Up to 12 sites.
- Short timeframe to find funding and install equipment.
- Small Vendor base at present.
- Benefits will be worthwhile
- Need Assistance.



# LRIT Product Wish List

- More frequent Pacific sector images
- More model charts (AVN ....etc)
- Upper Air raw data RA V particularly.
- Earthquake and Tsunami Graphics
- Volcanic Ash Graphics
- Hurricane Graphics



# EMWIN Upgrade

- Present system has limited capacity
- Only really reliable system for data delivery to many Pacific Islands
- Cost of upgrade unknown at this time
- Timeframe for changeover loosely defined.
- Still needed for smaller offices esp.. EMOs and Weather Offices.



# Other Activities

- EMWIN coverage for Western Pacific GOES 7, (GOES 9 ?) - Peacesat.
- Pacific EMWIN data stream on GOES 7 / 9
- Worldspace Coverage of Western Pacific via AsiaStar. 64 kbs channel available.
- Improve two way comms for Pacific Region (HF, VSAT, INTRANET ...)
- 2 way ISCS for larger stations.



# RANET PACIFIC

- RANET ( Radio Networking)
- A coordinated effort to improve meteorological and other communications especially into remote communities.
- EMWIN, Worldspace, HF Radio, Internet and other cost effective systems being used.
- Working towards 2 way systems.



# Thanks

- To NOAA and NESDIS for the opportunity to participate and bring the needs of the Pacific Islands to their attention.
- SPREP
- US National Weather Service
- NOAA/NESDIS International and Interagency Affairs Office.





THE END

Thank You from

South Pacific Regional Environment Programme  
Representing the Pacific Island nations